

of the report, the meeting does not approve of the staff being employed in biological survey." The chairman, Dr. Rottenburg, Prof. Bower, Prof. Graham Kerr, Prof. Lawrie, Dr. Teacher, Mr. E. J. Bles, Mr. Todd, the honorary secretary, and other members of the general committee then tendered their resignations and withdrew from the meeting.

The council of the Association of Teachers in Technical Institutions recently appointed a committee to report upon the mathematical syllabuses of the Board of Education, and the recommendations of the committee have been embodied in an "outline of suggested syllabuses" which has been sent by the council to the Secretary of the Board of Education. Several principles guided the council in drawing up its suggestions. It urges that there should be a progressive development in pure geometry, analytical geometry and analysis in each of the six stages into which the examinations of the Board are divided; that the six stages should give a homogeneous and comprehensive education in the main principles of the science; and that the course of work for honours examinations should be such as to place the student in a position to undertake original investigations should he desire to do so. It is a hopeful sign that teachers are able to lay before the Board of Education their views as to what it is reasonable and desirable to expect of candidates in examinations, and we have no doubt the Board will give the suggestions the consideration they deserve. Certain of the recommendations will be improved, no doubt, by submission to revision, but the cooperation of teachers with outside authorities in the examination of students deserves every encouragement.

ACCORDING to an address delivered by Miss Hoskyns-Abrahall in the Memorial Hall, Manchester, and published by the Manchester and Salford Sanitary Association, the system of popular education now current needs radical amendment in order to prevent further physical degeneration on the part of the lower-class population of the country. The system now in vogue is regarded as essentially non-hygienic, especially so far as infants and young children are concerned. The maintenance of silence and order in infant schools (formerly regarded as a piece of mental discipline) is condemned, and in lieu of this it is urged that the pupils should be put to play in a large empty apartment with "a heap of sand in one corner and a tub of water in another." It may be pointed out that much the same results could be attained without expense by allowing the children to play in the old-fashioned way in the streets or lanes. Nearly as drastic amendments are proposed in the curriculum for older pupils; while it is also urged that these should be kept at school until a considerably later age than is now the practice. Neither is the education of teachers anything like perfect, one of the elements lacking being "skilful observation of children and skilful handling of them in accordance with what has been observed."

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society. November 1, 1906.—"On Intravascular Coagulation in Albinoes and Pigmented Animals, and on the Behaviour of the Nucleo-proteids of Testes in Solution in the Production of Intravascular Coagulation." By G. P. Mudge. Communicated by Dr. A. D. Waller, F.R.S.

(1) When albinoes are injected with a solution of nucleo-proteid derived from a pigmented animal, a certain number of them, about 9 per cent., absolutely fail to clot, while about 7 per cent. give a qualified clotting, the remainder giving a typical intravascular coagulation of more or less extensive development.

(2) When albinoes are similarly injected with a solution of nucleo-proteid, but derived from albinoes, no absolute failure of coagulation occurs, and it is very doubtful if any qualified ones do. The great majority clot as distinctly as do pigmented individuals.

(3) When pigmented rabbits are injected with solutions of nucleo-proteids, derived from albinoes or with those

derived from pigmented individuals, no failures of coagulation occur.

(4) The Himalayan rabbit, in respect of its reaction to injected nucleo-proteids, behaves like the complete albino. This rabbit, though resembling the Norway hare in its winter coat, in which condition Pickering failed to obtain intravascular coagulation, differs from it in having pink (unpigmented) instead of pigmented eyes, and in never becoming periodically wholly pigmented. It cannot, therefore, be used as corroborative evidence of Pickering's conclusion with respect to the Norway hare.

(5) Failures to coagulate, when they occur, are due to inherent qualities of the individuals and not to weakening in the activity of the solutions used.

(6) Albinoes require a larger mean dose per kilogram of body weight of injected nucleo-proteid to cause death by intravascular coagulation than do pigmented animals, the relative resisting powers of the pigmented and albino individuals being as 1 to 1.5 respectively.

(7) Both albino and pigmented individuals are more resistant to nucleo-proteids, obtained from individuals of their own race, than they are to those obtained from the alternative source.

(8) The activity of a solution of nucleo-proteid, prepared from spermatic glands, decreases (but not quite uniformly) as the maturity (weight) of the gland increases.

(9) Solutions of nucleo-proteids, prepared from heavier (maturer) spermatic glands, undergo a progressive loss of activity with increasing period of keeping, i.e. from one to twenty days. But solutions derived from lighter (immature) glands undergo a fluctuating variation in activity, falling off on the second day after preparation and rising again on the fifth to seventh, and thence exhibiting a progressive fall.

January 24.—"Note on the Application of Van der Waals's Equation to Solutions." By the Earl of Berkeley. Communicated by Prof. J. Larmor, Sec.R.S.

The author attempts to apply Van der Waals's equation of state to the results of direct measurements of osmotic pressure at 0° C. Various modifications of this equation were tried without success, but by the introduction of a third constant two equations were found that fit the experimental numbers.

The equations are:—

$$(A/v - p + a/v^2)(v-b) = RT \quad \dots \quad (1)$$

$$(A/v + p - a/v^2)(v-b) = RT \quad \dots \quad (2)$$

where p is the osmotic pressure, R and T the gas constant and the absolute temperature respectively, while the v of equation (1) is the volume of water which contains 1 grain molecule of solute, and the v of equation (2) is the volume of solution containing the gram molecule.

It is pointed out that both equations give impossible values for the critical points; but on plotting the graph of equation (1) for the different substances, it is found that in each case the point at which $df/dv=0$ and the osmotic pressure decreases with increase of concentration may be within the reach of experiment. Decrease of osmotic pressure with increase of concentration implies physical instability and change of state, hence it is suggested that when $dp/dv=0$ the limit of supersaturation has been reached, and the solute must crystallise out.

It is shown that a solution has two osmotic pressures; the second osmotic pressure (which would only be manifested directly if one could find a semi-permeable membrane permeable to the solute) is connected with the freezing point of the solution in a manner similar to that which connects the crystallising point and the ordinary osmotic pressure.

"On the Presence of Europium in Stars." By Joseph Lunt. Communicated by Sir David Gill, K.C.B., F.R.S.

Having obtained, from measures on the calcium line $\lambda 4435.85\text{\AA}$ in the spectra of α Boötis and β Geminorum, radial-velocity values which were not in accord with those obtained from other stellar lines, the author suspected that the line near $\lambda 4435.8$ in the stars named was not a "pure" one. The resulting radial velocity was such as would be given by a "disturbing" line very close to the calcium line and at about $\lambda 4435.753$. Reference to records of laboratory spectra showed him that Exner

and Haschek gave a strong line of europium at $\lambda 4435.75$. A search for other strong europium lines in the Arcturus spectrum revealed several abnormally strong stellar lines agreeing closely in position with the europium lines, and the author concludes that these cannot be explained without involving the rare element in question. Incidentally, he reviews the evidence for the occurrence of the same element in the sun's chromosphere, and confirms Prof. Dyson's previous conclusions that europium is represented.

January 31.—“On the Discharge of Negative Electricity from Hot Calcium and from Lime.” By Dr. Frank Horton. Communicated by Prof. J. J. Thomson, F.R.S.

This paper contains an account of some experiments in which the negative leak from hot calcium was compared with that from platinum and from lime under similar conditions. The negative leak from a platinum strip heated by an electric current was first investigated. This strip was then covered with metallic calcium by sublimation from an electrically-heated calcium wire situated in the discharge tube near to the cathode. The negative leak from the calcium-covered strip was determined at different temperatures. Some pure oxygen was then let into the apparatus, and the calcium on the cathode was oxidised to lime. The excess of oxygen was then removed and the negative leak again measured. Finally, hydrogen was let into the apparatus, and the effect of this gas on the negative leak from lime was investigated.

The results obtained may be summarised as follows:—

- (1) The negative leak from calcium is greater than from platinum at the same temperature.
- (2) On oxidising the calcium on the cathode to lime there is a great increase in the negative leak. This is contrary to expectation, for we should expect the presence in the molecule of lime of the electronegative atom of oxygen to act as an attracting force tending to retain the escaping corpuscle, and that consequently the leak from lime would be less than from calcium under the same conditions.
- (3) The negative leak from lime in hydrogen is much greater than that in air or helium.

February 28.—“The Occlusion of the Residual Gas by the Glass Walls of Vacuum Tubes.” By A. A. Campbell Swinton. Communicated by Sir William Crookes, F.R.S.

On strongly heating portions of the glass walls of vacuum tubes that had been subjected to severe use in 1898, and had since lain open to atmospheric pressure, they immediately became clouded, the effect being due to quantities of minute spherical bubbles of gas which could be clearly seen with a microscope, and were on the average about 0.01 mm. in diameter. By dissolving away one surface of the glass with hydrofluoric acid until the bubbles just disappeared, and measuring the thickness before and after this process, it was ascertained that the bubbles were about 0.122 mm. from the inner surface of the glass. It would therefore appear that the particles of gas must have been shot into the glass to about this depth.

In a typical case the number of bubbles per square centimetre was found to be about 625,000, from which it was calculated that the total amount of gas at atmospheric pressure occluded in the particular tube was nearly 0.05 cm. apart from any further amount that may have escaped on the heating of the glass.

A number of pieces of the glass were next placed in a flat and air-tight tin chamber connected with a vacuum pump and a spectrum tube. This was exhausted until no electric discharge would pass through the spectrum tube, and was then hammered so as to powder the glass. There was an immediate fall of vacuum, and on examination with a spectroscope the gas that had been evolved was found to be mainly hydrogen. This process was repeated several times, the result in each case being to bring out more hydrogen. It would therefore appear that the gas occluded in vacuum tubes exhausted in the ordinary manner from atmosphere is almost entirely hydrogen, due, no doubt, to the electrolysis of water vapour.

Further experiments were tried with helium. A new tube was first exhausted until no discharge would pass,

and then helium was admitted in small quantities from time to time with intervening sparking, until 1 cubic centimetre at atmospheric pressure had been absorbed. The glass of this tube showed bubbles when heated, and on placing some of it in a vacuum chamber, as before described, and reducing it to powder, sufficient helium was evolved to show the helium spectrum clearly. Seeing that helium does not combine with anything at ordinary temperatures, and that this gas was extracted from the glass by mere mechanical powdering of the latter, it would appear that the occlusion is due to the mechanical driving of the gas into the glass, and not to any chemical combination.

Linnean Society, March 7.—Prof. W. A. Herdman, F.R.S., president, in the chair.—A series of specimens of *Nitella ornithopoda*, A. Braun, collected by the Rev. Canon Bullock Webster: H. and J. Groves. This rare species has only been found in a small district in the west of France, from Angoulême in the north to the south of Arcachon, and doubtfully in one locality in Portugal. The especial interest of the specimens exhibited, which were collected to the south of Arcachon in March and April, 1906, was that they represented gatherings of the plant from very different habitats, and showed great variations. The plants collected in shallow ditches were already in full fruit, while those from running water and from Lake Cazan were quite immature, and so far sterile. Only a few specimens of this species have previously reached England, and the collection exhibited was probably by far the most extensive series of forms yet obtained.—The ornamentation of the frog tadpole, *Rana temporaria*, tracing the growth of golden spots which attain a maximum about the thirtieth day after the tadpole emerges from its gelatinous envelope: Miss N. F. Layard.—Decapoda captured during the 1900 cruise of H.M.S. *Research* in the Bay of Biscay, forming No. xi. of the series of reports: S. W. Kemp. The majority of the specimens were larval, adult Decapoda, being as a rule strong enough to swim out of an ordinary tow-net. A fine series of stages of *Acanthephyra purpurea*, A. M.-Edw., showed that, as Coutière predicted, this species hatches as a Zoaea, while the allied *A. debilis* leaves the egg in a “post-larval” condition, with all its appendages formed. A curious feature of development was noted in that the rostrum and cornea, after considerable growth, undergo a sudden reduction, followed again by subsequent growth to the adult condition. The various stages, and those of a Caricyphus larva, were fully described and figured.—Colour changes in South African chameleons, observed during the visit of the British Association to South Africa in 1905: Prof. E. B. Poulton and Dr. G. B. Longstaff.—The occurrence of *Spergularia atheniensis* and *Agrostis verticillata* in the Channel Islands: G. C. Druce.

Geological Society, March 13.—Dr. Aubrey Strahan, F.R.S., vice-president, in the chair.—A Silurian inlier in the eastern Mendips: Prof. S. H. Reynolds. The fragmental igneous rock is of two types:—(1) normal fine-grained tuff, from which in three localities more than thirty species of Silurian (probably Llandovery) fossils have been identified; the tufts are seen at Sunnyhill to underlie the trap; (2) a coarse ashy conglomerate, the relation of which to the other rocks is obscure. Four possibilities as to the nature of this rock are discussed. It may be the basement-conglomerate of the Old Red Sandstone, an aqueous deposit belonging to the same igneous series as the associated trap and normal tuff, or an old river-gravel deposited subsequent to the fossiliferous Silurian and prior to the Old Red, or it may represent the necks of the volcanoes from which the rocks were ejected. The last of these possibilities agrees best with the facts.—Changes of physical constants which take place in certain minerals and igneous rocks, on the passage from the crystalline to the glassy state, with a short note on eutectic mixtures: J. A. Douglas. The author describes the electrical apparatus employed. Powdered rock of known specific gravity is fused as often as required in a loop of platinum ribbon. The fused product is powdered, examined with the microscope, and then placed in a diffusion column. The diffusion column is sealed in a glass tube. Acid rocks were found to increase 6 per cent. to 10 per

cent. in volume, intermediate rocks 5 per cent. to 7 per cent., and basic rocks less than 6 per cent. Of minerals tested, pargasite underwent the greatest expansion, albite gained 10 per cent., while in anorthite and leucite the increase was less than 4 per cent. The melting points of the rocks and minerals experimented upon were found to range from 1260° C. for rhyolite to 1070° C. for Cleo Hill dolerite. The refractive indices of the glasses were determined in dense fluids. An attempt was made to find experimentally the eutectic proportions of quartz and felspar. A mixture of orthoclase and albite gave a melting point lower than those of either mineral taken separately.

Royal Meteorological Society, March 20.—Dr. H. R. Mill, president, in the chair.—The exploration of the air: Major B. F. S. **Baden-Powell**. Two classes of people are interested in the exploration of the atmosphere:—(1) the meteorologists, who study it chiefly to find out about the weather, and (2) the inventors, who would utilise it as a highway of travel. But these two are by no means rivals. The attainment of their objects will be of mutual assistance to one another. The aerial navigator will want to know all about the currents and the conditions of the air, while the meteorologist will derive the utmost benefit from the ability to visit any parts of the atmosphere. There are three means now at the service of man by which he may ascend into these desirable regions, or may send up self-recording instruments to probe the mysteries of the skies, viz. balloons, kites, and flying machines. The balloon, although at the time of its invention it was hailed with acclamation as promising the conquest of the air to man, yet it is now realised that this cumbrous and delicate apparatus is not capable of much practical application. It is, nevertheless, useful (1) as an observatory for scientific investigation, (2) as a means of reconnaissance in war, and (3) as a most agreeable way of spending an hour or two in blissful peace and sublimity. But recently great strides have been made in the improvement of the balloon in the way of providing it with engines and propellers so that it may be driven to any predetermined goal. Twenty-five years ago the French Government made the first dirigible airship, and now it possesses one, if not more, that seems to be a really practical air vessel of war. Count Zeppelin in Germany has also produced a machine which in point of size as well as in speed has beaten all records. Going to the other extreme, we have small balloons now capable of attaining the greatest heights carrying self-recording instruments. Such contrivances have recently ascended to the enormous altitude of 82,000 feet, or nearly sixteen miles above the surface of the earth. Closely connected with this subject of *ballons sondes*, as the French call them, is that of meteorological kites. These also have been much improved in recent years, and instruments lifted by kites retained by steel wires have actually ascended to a height of four miles. Kites of a much larger dimension have also come into use during the last few years. At Aldershot they have been regularly introduced into the service. Men were first lifted by this means in 1895, in which year the lecturer made a number of ascents up to 100 feet high, but improvements have gradually followed until now men have actually gone up to a height of 3000 feet, an elevation practically beyond the reach of rifle bullets, and so high as to render the aéronaut almost invisible. Major Baden-Powell, in conclusion, referred to a subject which, if it has not hitherto had any very practical results, yet promises to bring about perhaps more extraordinary changes in the life of man than have resulted from any other of the marvellous inventions of the nineteenth or twentieth centuries. The flying machine has come, and it has come to stay. During the last two or three years, not only have men been successfully raised off the ground, but have been able to sustain themselves in the air for half an hour at a time. Very little more remains now to be done before we can say that man has veritably conquered the air.

CAMBRIDGE.

Philosophical Society, February 25.—Dr. Hobson, president, in the chair.—Some points in the anatomy of the peripheral nerves: Dr. B. **Smith**. Several specimens were

exhibited to show that the contour, size, and form of the nerve trunks of the body exhibited considerable variation; that these variations were associated with (i) the physical conditions of the tissue traversed by the nerve, (ii) the displacements and strains to which the nerve trunk was subject; that the local enlargements which certain nerves exhibited were due histologically to (i) an accumulation of the intrinsic connective tissue in the nerve trunk, (ii) the presence of numerous Paccinian corpuscles embedded in the nerve fibre bundles of the nerve trunk.—An occipital vermicular fossa and cerebellar vermicular eminence: Dr. G. F. **Rogers**. A median occipital fossa 14 mm. \times 35 mm. in the shape of a gutter was shown with a series of varieties ranging from a small triangular flattening at the base of the occipital crest, through triangular fossæ of increasing size up to the specimen noted above.—The tendency to fusion shown by the suboccipital vertebrae: Prof. A. **Macalister**. A series of ankylosed cervical vertebrae in which there was exhibited a progressive coalescence of the several parts of the occiput and atlas, and of the axis and third cervical vertebra. The stages ranged from a simple adhesion to a complete unification. In one atlas there was a perfect neurocentral articulation between the pedicle and the axial odontoid process on one side.—The range of variation in the navicular bone: Dr. M. **Smith**. An exhaustive investigation of the very large collection in the anatomy school results in the distinction of several well-defined varieties of the navicular bone.—The histology of the early placenta in *Semnopithecus*: Dr. W. L. H. **Duckworth**. The anatomical department has received from Dr. C. Hose a specimen of the uterus of a *Macacus nemestrinus* in an early stage of pregnancy. Microscopic examination of the placental area gives valuable and suggestive information as to the mode of connection of the maternal with the embryonic tissues in the earliest stages of placental formation, showing in particular the fate of the uterine epithelial cells.—A chemical test for "strength" in wheat-flour: T. B. **Wood**. (See NATURE, February 21, p. 391.)—The application of integral equations to the determination of expansions in series of oscillating functions: H. **Bateman**.

March 11.—Dr. Hobson, president, in the chair.—Reduction of carbon dioxide to formaldehyde (preliminary note): Dr. **Fenton**. Experiments were performed which demonstrated the direct reduction of carbon dioxide to formaldehyde in aqueous solution. It was further shown that a similar reduction can be brought about indirectly, with formic acid as the intermediate stage.—Dithioxanthoxalanyl and its homologues: S. **Ruhemann**. Thioacetanilide and its homologues react with ethyl oxalate in the presence of sodium ethoxide to yield coloured compounds; these, in composition, differ from the corresponding substances which the author previously obtained, on using acetanilide and its homologues, by the replacement of two of their oxygen atoms by sulphur.—Some observations on complex carbonates: T. B. **Wood** and H. O. **Jones**. The authors have investigated the solubility relations of potassium and copper carbonates, and determined the conditions under which the double salt, $K_2CO_3CuCO_3$, crystallises out from these solutions.—An optically active tetrahydroquinoline compound: F. **Buckney**. Experiments have been made on a series of derivatives of tetrahydroquinoline containing a quinquevalent nitrogen atom, but at present the only compound that has been resolved is methyl allyl tetrahydroquinolinium *d*-brom-camphorsulphonate. After repeated re-crystallisation of the *d*-brom-camphorsulphonate from ethyl acetate and toluene, the less soluble portion had a molecular rotatory power of 195° in aqueous solution, the value of $[M]_D$ for the basic ion consequently being -75° . The more soluble portion gave a value for $[M]_D$ of 342°. Hence the $[M]_D$ for the basic ion is $+72^\circ$.—A series of substituted bromanilines: J. R. **Hill**. These compounds were prepared in order to obtain from them two series of asymmetric nitrogen compounds by the addition of allyl and benzyl iodides. Such series would only differ from those described by Miss M. B. Thomas and Mr. H. O. Jones (Journ. Chem. Soc., 1906, p. 280) by the presence of a bromine atom in the phenyl group. In this way the change in the optical activity produced by increasing the weight of the phenyl group could be studied. These

bromanilines were prepared by the bromination of the corresponding anilines; the series contains the bromophenyl and methyl groups with the ethyl, propyl, isopropyl, isobutyl, and isoamyl groups. The isopropyl compound is a solid; the others are oils. The bases were characterised by means of their picrates, and the quaternary compounds formed by addition of methyl iodide.—Some new platinocyanides: L. A. Levy. In continuation of previous researches upon the fluorescence of platinocyanides (Trans. Chem. Soc., January, 1906), the author prepared uranyl, guanidine, and nitron platinocyanides, which were briefly described.—The resolution of salts of asymmetric nitrogen compounds and weak organic acids: Miss A. Homer. With a view to find out whether optically active nitrogen compounds could be used for the resolution of weak organic acids, that is, for those cases where a strong base is required, tartaric acid was treated with a solution of phenyl benzyl methyl isopropyl ammonium hydroxide prepared from the iodide, equimolecular quantities of acid and base being used. A well-formed crystalline substance was obtained which on analysis proved to be the acid tartrate of the base used.—A new coloured fluorescent hydrocarbon: Miss A. Homer. A new hydrocarbon has been isolated from the products obtained by the action of aluminium chloride on naphthalene at 100° C., to which the formula $C_{20}H_{22}$ and the name tetramethyl erythrene have been assigned.—Notes on the proportion of the sexes in dogs: W. Heape. The results show a remarkable similarity in the proportion of the sexes born by greyhounds, collies, and large dogs as a whole, while in terriers there is sufficient difference from the above to show that distinct racial variation occurs. It is assumed from a variety of known facts that ova and spermatozoa are themselves sexual, and that the latest moment when the sex of the offspring can be determined is at the time of fertilisation.—Preliminary note upon the presence of phosphorus in crystalline egg albumin: Miss E. G. Willcock and W. B. Hardy.—The natural units of mass, length, and time: H. C. Pocklington.—The variation of the absorption bands of a crystal in a magnetic field: W. M. Page. An attempt is made to give a theoretical explanation of some observations made by M. Jean Becquerel in the behaviour of the absorption bands of certain uniaxial crystals in a magnetic field.

DUBLIN.

Royal Irish Academy, February 25.—Dr. F. A. Tarleton, president, in the chair.—The lower Palaeozoic rocks of Pomeroy: W. G. Farnsides, Dr. Gertrude L. Elles, and B. Smith. The paper gives an account of the application of the modern zonal methods to a district made classic by Portlock so long ago as 1845. The beds developed are divided into the Desertcreat group, the Little River group, and the Corrycroar group, and are the equivalents of the Ashgillian, the Llandovery, and the Tarannon groups of Great Britain. Of these the two lower groups are considered in detail, and are considerably subdivided. The Desertcreat group rests unconformably upon the ancient hornblendic and granitic rocks to the north, and is of a shelly or trilobite bearing type corresponding to the contemporaneous rocks of Girvan; its upper beds contain also a few graptolites and the interesting *Aegina rediviva*. The Little River group follows conformably, and, like the rocks of Moffat, is wholly graptolitic. The rocks are much folded on the isoclinal plan, and the total thickness of the two groups mentioned can hardly exceed 600 feet. Notes on the correlation with other areas and descriptions of certain interesting trilobites are appended. The paper is illustrated by a map and sections.

DIARY OF SOCIETIES.

THURSDAY, APRIL 4.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY, at 8.—Steam Traps: Gordon Stewart.

FRIDAY, APRIL 5.

GEOLOGISTS' ASSOCIATION, at 8.—On the Existence of the Alpine Vole, *Microtus nivalis*, in Britain during Pleistocene Times: M. A. C. Hinton.

MONDAY, APRIL 8.

SOCIOLOGICAL SOCIETY, at 4.30.—Research Meeting: The Problems of Cities: Prof. Geddes.

VICTORIA INSTITUTE, at 4.30.—Plant Distribution from an Old Stand-point: Dr. H. B. Guppy.

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SOCIETY OF CHEMICAL INDUSTRY, at 8.—Observations on Cotton and Nitrated Cotton: H. de Mosenthal.

TUESDAY, APRIL 9.

ROYAL INSTITUTION, at 3.—Wings and Aeroplanes: Prof. G. H. Bryan, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Adjourned discussion:—The Application of Hydro-Electric Power to Slate Mining: M. Kellow.—Electrically Driven Winding Gear and the Supply of Power to Mines: A. H. Preece.

ZOOLOGICAL SOCIETY, at 8.30.

WEDNESDAY, APRIL 10.

SOCIETY OF PUBLIC ANALYSTS, at 8.—The Bacterial Estimation of Phenol and Cresol: M. Wynter Bith and L. Goodban.—A New Method for the Estimation of Tartaric Acid: Alfred C. Chapman and Percy Whiteridge.—The Detection of Cocoanut Oil in Butter: E. Hinks.

ENTOMOLOGICAL SOCIETY, at 8.—Odonata collected by Lieut.-Colonel Nurse, chiefly in North-Western India: Kenneth J. Morton.

SOCIETY OF ARTS at 8.—Arts and Industries in Hungary in Ancient and Modern days: L. Feiberman.

THURSDAY, APRIL 11.

ROYAL INSTITUTION, at 3.—The Birth and Affinities of Crystals: Prof. Henry A. Mier, F.R.S.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.

FRIDAY, APRIL 12.

ROYAL INSTITUTION, at 9.—Conservation of Historic Buildings and Frescoes: Prof. A. H. Church, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—An Engineer's Visit to Japan and Canada: R. W. Allen.

ROYAL ASTRONOMICAL SOCIETY, at 5.

MALACOLOGICAL SOCIETY, at 8.—Notes on New Zealand Polyplacophora, with Descriptions of Five New Species: H. Suter.—Descriptions of New Moths from New Caledonia: G. B. Sowerby.—Some New Species of Drymæus from Peru, Mexico, &c.: S. I. Da Costa.—A New Species of Vallonia from India: G. K. Gude.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Continued discussion:—Petrol Motor-Omnibuses: W. Wcrby Beaumont.

SATURDAY, APRIL 13.

ROYAL INSTITUTION, at 3.—Studies in Magnetism: Prof. Silvanus P. Thompson, F.R.S.

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